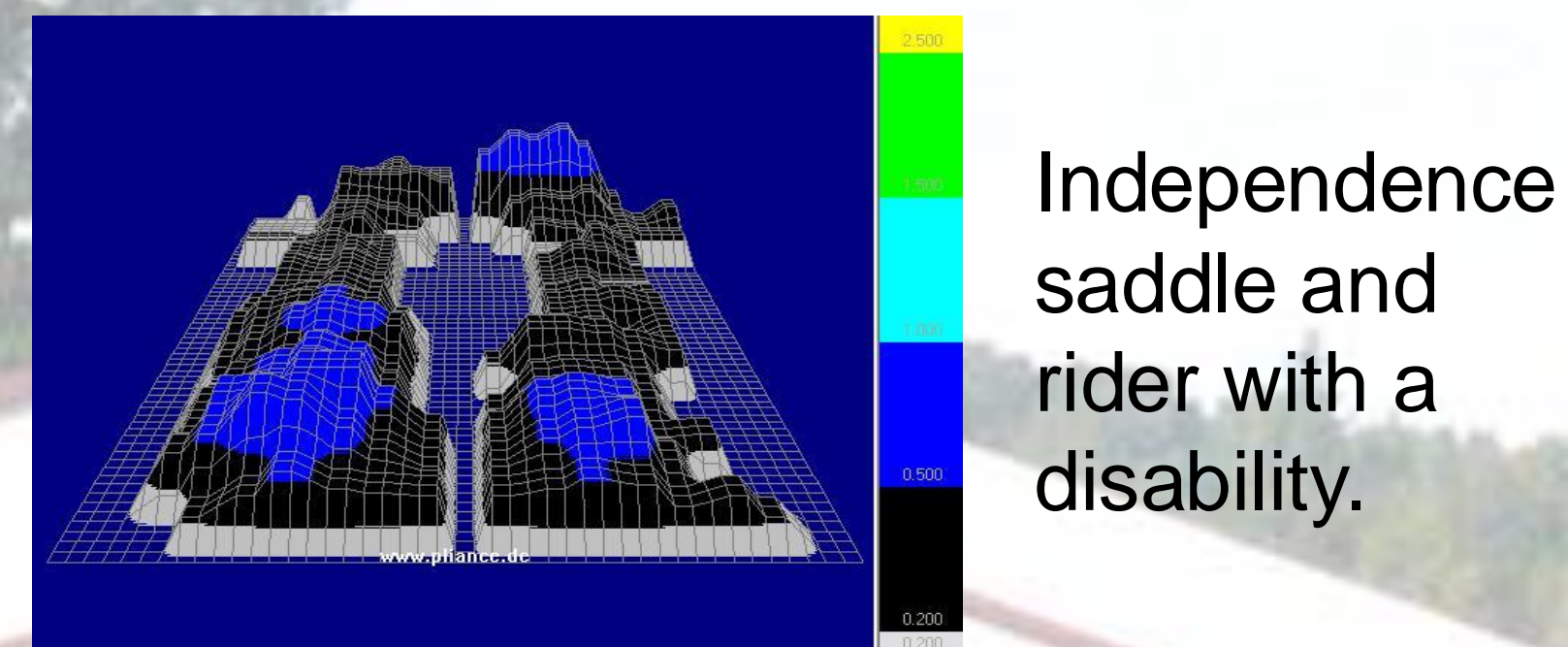
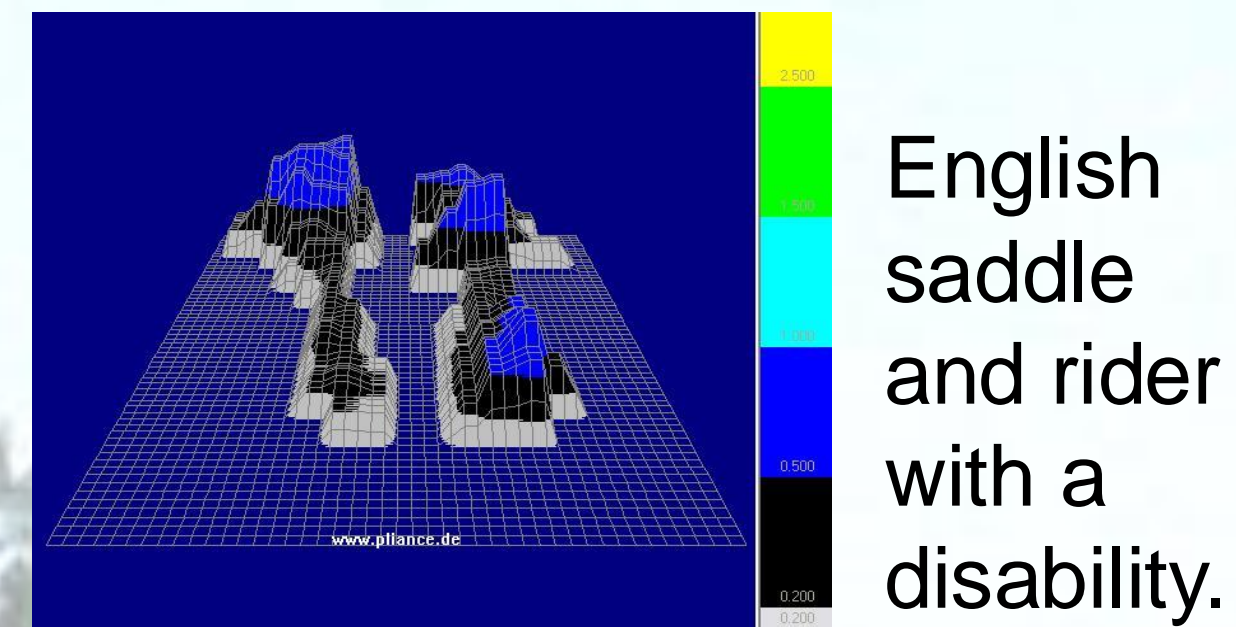


Pressure Testing of the Independence Saddle on the Therapeutic Riding Horse

A Pilot Study with Michigan State University; Dr. Hilary Clayton, BVMS, PhD, MRCVS College of Veterinary Medicine; Dr. Lana Kaiser, MD, DVM College of Human Medicine; Dr. Camie Heleski PhD Department of Animal Science; Bonnie DePue, OTR C.H.U.M. Therapeutic Riding Inc

The Independence Saddle was field tested at CHUM for 9 months; among the areas under consideration were stress behaviors and pain issues in our horses. This led to the collaboration with MSU for empirical data on stress behaviors and the pressure exerted on the horses back with the Independence Saddle.



Hypothesis:

- To determine the level of stress behaviors exhibited by the horse using the Independence saddle.
- To determine the pressure and forces exerted on the horse's back from the Independence saddle.

Methods:

- Three riders participated:
 - Subject 1: experienced rider with no disability
 - Subject 2: rider with spastic CP
 - Subject 3: rider with athetoid CP
- Each rider rode in the English saddle and then in the Independence Saddle approximately 10 minutes each.
- The same horse used for all trials was accustomed to using this saddle. An additional horse was present to simulate a riding class environment.



Conclusions:

- Horse's used must have a back long enough and strong enough to accommodate the saddle
- Though Independence saddle is heavier, the English saddle shows more pressure over smaller area
- Riders 2 & 3 showed more pressure under the front of the English saddle than the Independence saddle
- There were larger sway patterns anterior/posterior and mediolateral with riders 2 & 3, potentially due to decreased core strength. Range of motion of the center of pressure may be a useful variable for monitoring changes in the rider's core strength.
- In this study, the pressure/forces from the Independence saddle were not greater on the horse's back nor were there significant stress behaviors related to the saddle's use.

Discussion:

Measures used :

The Pliance Saddle System, a thin electronic pressure mat was placed under the saddle to measure the pressure distribution between the saddle and the horse. Divided into 'right' and 'left' sides each with 128 sensors, the mat wirelessly measures and reports data back to the computer on force and pressure on different parts of the horse's back and the motion pattern of the rider's center of pressure when using the Independence Saddle and a typical English saddle.

Each rode in the English saddle first and then the Independence Saddle. Data was collected on a straight line for 10 seconds every minute for 5 minutes. Eight strides for each rider/saddle combination were analyzed. The forces were analyzed in terms of distribution between the 9 regions: whole mat, left side, right side, and six regions dividing each side into top, middle, and bottom.

A previously developed system for monitoring/counting 'conflict/stress/frustration' behaviors over specific intervals of time was used. 32 c/s/f behaviors were noted with the English saddle and 7 c/s/f behaviors were noted with the Independence saddle.

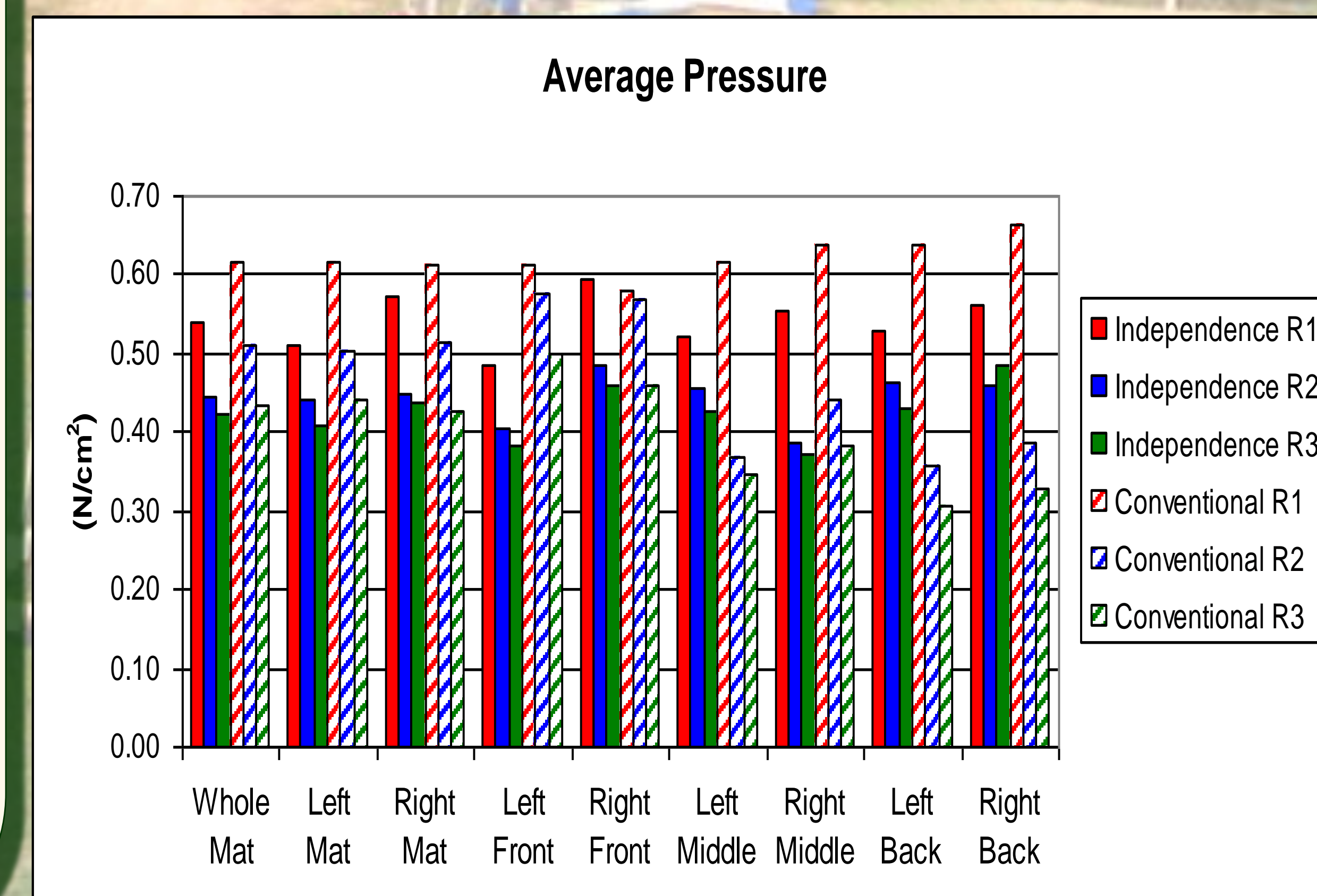


Fig 1: Average pressure beneath the Independence saddle and a conventional saddle for 3 riders (R1, R2, R3).

